CLAIMS

1. A composition comprising a matrix which, on pyrolysis, forms spinel, and an inorganic particulate filler having a hollow or a lamellar structure, wherein the matrix comprises a liquid pre-ceramic binder and at least one other component selected from a metal powder, a metal oxide powder and mixtures thereof.

2. A composition according to claim 1, wherein the liquid pre-ceramic binder comprises a material selected from aluminium-containing pre-ceramic materials and magnesium-containing pre-ceramic materials.

3. A composition according to claim 2, wherein the liquid pre-ceramic binder comprises a material selected from aluminium chlorohydrate, aluminium nitrate nonahydrate, magnesium chloride hexahydrate, magnesium nitrate nonahydrate and mixtures thereof.

4. A composition according to claim 3, wherein the matrix comprises an aluminium chlorohydrate binder and talc.

5. A composition according to claim 3, wherein the matrix comprises an aluminium nitrate nonahydrate binder and a metal oxide selected from magnesia, talc and mixtures thereof.

6. A composition according to claim 4 or claim 5, wherein the matrix additionally comprises alumina.

7. A composition according to claim 3, wherein the matrix comprises a pre-ceramic binder selected from magnesium chloride hexahydrate and magnesium nitrate nonahydrate; a metal oxide selected from magnesia, talc and mixtures thereof; and alumina.

8. A composition according to any preceding claim, wherein the filler comprises hollow particles of an inorganic oxide.

9. A composition according to any of claims 1 to 7, wherein the filler comprises a micaceous material.

10. A composition according to claim 9, wherein the filler comprises vermiculite.

11. A composition according to any preceding claim, which comprises 10 to 95 weight %, preferably 20 to 70 wt.%, hollow or lamellar filler.

12. A composition according to any preceding claim, which comprises an inorganic filler in addition to the filler having a hollow or a lamellar structure.

13. A product obtainable by pyrolysing a composition as defined in any preceding claim.

14. An article comprising a substrate and, attached to or coated on a surface of the substrate, a product as defined in claim 13.

15. An article according to claim 14, wherein the substrate is selected from ceramic materials, preferably oxide-oxide ceramic materials, and high temperature metallic materials.

16. An article according to claim 14 or claim 15, wherein the substrate forms part of an article selected from an aircraft, power-generating equipment, a furnace lining, a heat-exchanger, and a reactor.

17. A method of manufacturing a heat resistant product, the method comprising mixing together a matrix as defined in any of claims 1 to 7 and an inorganic particulate filler having a hollow or a lamellar structure as defined in any of claims 1 and 8 to 10; and pyrolysing the resultant mixture.

18. A method according to claim 17, wherein, prior to pyrolysis, the mixture is coated on to a substrate.

19. Use of a composition as defined in any of claims 1 to 12, as a thermal barrier coating.